

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 110633

January-07-14 1:12:31 PM

110633

Page 2

Item ID: 646.3513	Accept	*N900040100*	Setup Start	*NS1*
Revision ID: U/R			Stop	*NS2*
Item Name: Strut				
Start Date: 1/07/14	Start Qty: 6.00	*6*	Cust Item ID:	
Required Date: 1/07/14	Req'd Qty: 6.00	*6*	Customer:	
Reference:				

Approvals:	Process Plan: _____	Date: _____	Tooling: _____	Date: _____	Run Start	*NR1*
	QC: _____	Date: _____	SPC (Y/N): _____	Date: _____	Stop	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00 19/2/19				6			
140 *140* Small Fab Small Fab	1- Fabricate tube as per dwg Memo	0.00 0.00				6		14-05-20	mal
150 *150* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00				6		14-05-20	DAS 9 9-89

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Offset/Setup									
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Supplier									
Training									
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Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence
		<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
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Work Order ID 110633

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Item ID: 646.3513 Accept *N900040100* Setup Start *NS1*
Revision ID: U/R Stop *NS2*
Item Name: Strut
Start Date: 1/07/14 Start Qty: 6.00 *6* Cust Item ID:
Required Date: 1/07/14 Req'd Qty: 6.00 *6* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	QC21- Final Inspection - Work Order Release	0.00							
250									
QC	Memo	0.00							
Quality Control									

MLJ 14-06-02

U 4/05/30

DQA: _____ Date: _____



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FAULT CATEGORY

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Picklist Print

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Page 1

Work Order ID: 110633

Parent Item: 646.3513

Parent Item Name: Strut

Start Date: 1/07/14

Required Date: 1/07/14

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A 12.10.19 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S12GA 304/316 0.100" Sheet		Purchased	No				sf	124.6300		1		14-02-19	
				<u>Location</u>		<u>Loc Qty</u>	<u>Loc Code</u>						
				MAT019		124.63							
				113062		76.13							
				113077		19							
				m126309		29.5							
M304TR0.500W.049 304 RD Tube .500 x .049W		Purchased	No				f	0.0000		7		14-05-15	MAL

m128833 x 5.125'

126309 → ①

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Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04274

SHEET 1 OF 1

DWG NO. 646.3500

REV: NC

PREPARED BY J. SOTO

DATE: 12/02/2013

EFFECT ON DWG

☐ INC. ☒ UNINC.

DWG TITLE: STRUT

APPROVED BY:

ENGR *[Signature]*

MFG

[Signature]

QC

[Signature]

EFF. NEXT ORDER

TRANSACTION CODES (TC):

A-ADD
R-REVISE

C-CREATE
D-DELETE

REASON: REVISED DELTA NOTE 1 & 2.

SHEET 1, ZONE A1 IS:

IS

NOTES:

- 1 MATERIAL: AISI 304/ 316 SS SHEET .062 THK
(REF DART SPEC. M304S16GA)
- 2 MATERIAL: AISI 304/316 SS 0.500 OD X 0.049 WALL
(REF DART SPEC. M304TR0.500W0.049)
ENSURE SEAMLESS TUBE IS USED
- 3 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2
COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N
4. DEBURR AND BREAK ALL SHARP EDGES
5. WELDS IAW MIL-STD-2219.
TIG WELD WITH FILLER ROD

110633 MLJ
14-01-07

DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

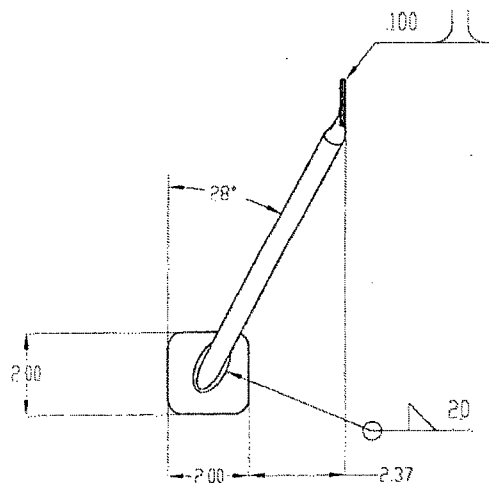
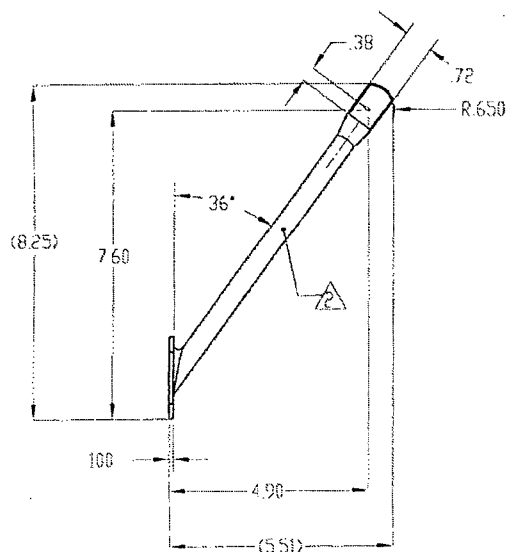
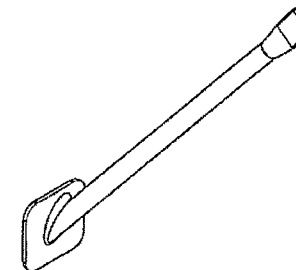
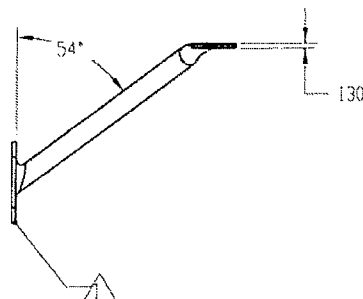
☐ YES ☒ NO

APICAL
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 02440		SHEET 1 OF 1	
DWG NO. 646.3500	REV: NC	PREPARED BY S. HUFF	DATE 06/08/09
EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.			
DWG TITLE: STRUT			
APPROVED BY: ENGR [Signature]	MFG [Signature]	QC [Signature]	EFF: CURRENT ORDER AND STOCK
REASON: REVISED GEOMETRY TO ACCOMMODATE NEW EXISTING AIRCRAFT PROVISIONS			

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

SHEET 2 IS:



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRU ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY
☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED
☐ YES ☒ NO

APICAL
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

02197

SHEET 1 OF 1

DWG NO. 646.3500

REV: N/C

PREPARED BY

S. HUFF

DATE: 01/05/09

EFFECT ON DWG

☐ INC. ☒ UNINC.

DWG TITLE:

STRUT

APPROVED BY:

ENGR

[Signature]

MFG

[Signature]

QC

[Signature]

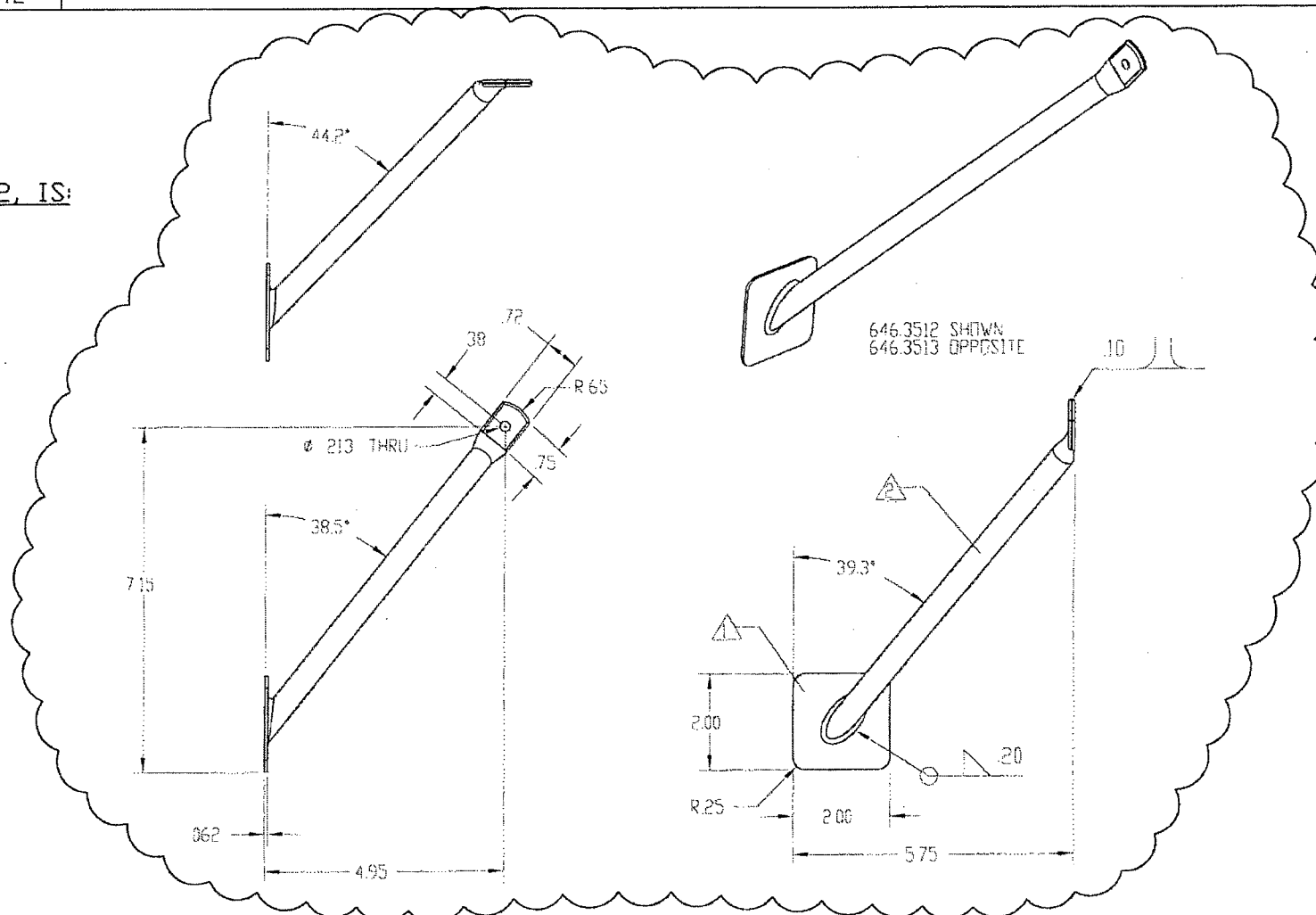
EFF:

NEXT ORDER

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: REVISED ANGLE OF 646.3512 & 646.3513 FOR BETTER FITMENT

SHEET 2, IS:



DOCUMENTS EFFECTED:

☐ MDL

☐ INSTALL INSTRU

☐ ICA

☐ FMS

☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

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NOTES:

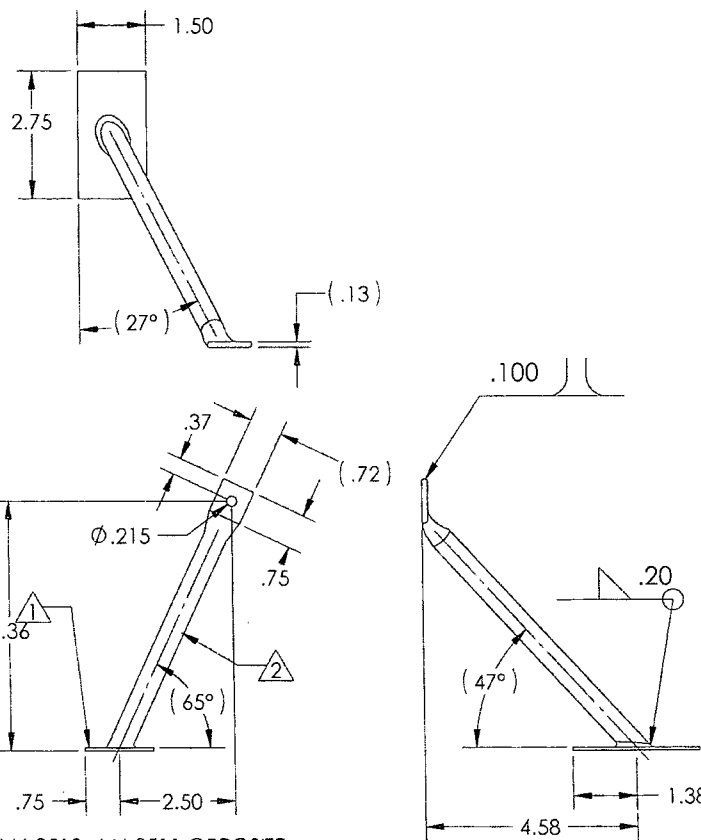
1 MATERIAL: 6061-T6 ALUMINUM IAW AMS-QQ-A-250/11;
.062" THK.

2 MATERIAL: 6061-T6 ALUMINUM IAW AMS-WW-T-700/6
.500" OD; .062" WALL THK

3 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2
COLOR BLACK;
CARDINAL 4860-50 PRETREATMENT PRIMER
PRIME IAW MIL-P-23377J TYPE I CLASS N

4. DEBURR AND BREAK ALL SHARP EDGES

5. WELDS IAW MIL-STD-2219.
TIG WELD WITH FILLER ROD



646.3510, 646.3511 OPPOSITE

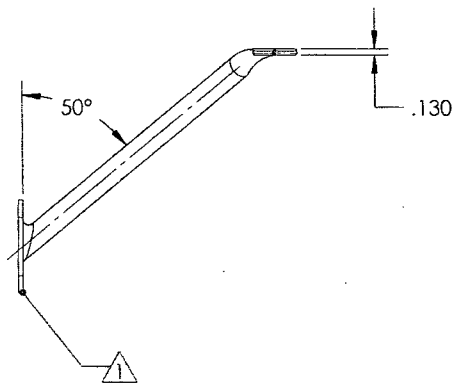
646.3510 SHOWN
646.3511 OPPOSITE

UNINCORPORATED ECN(s)

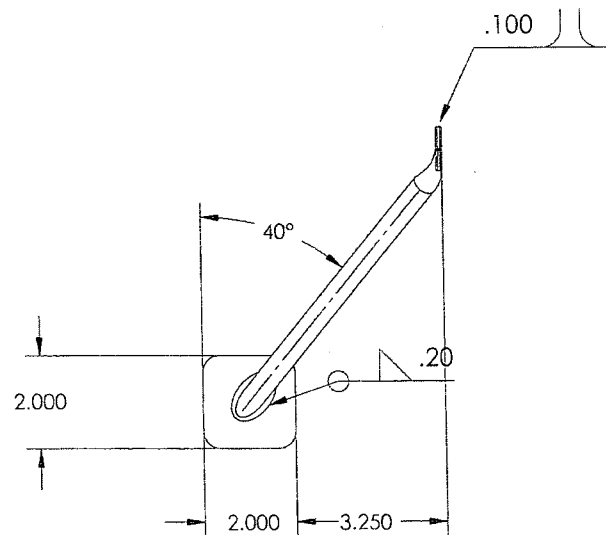
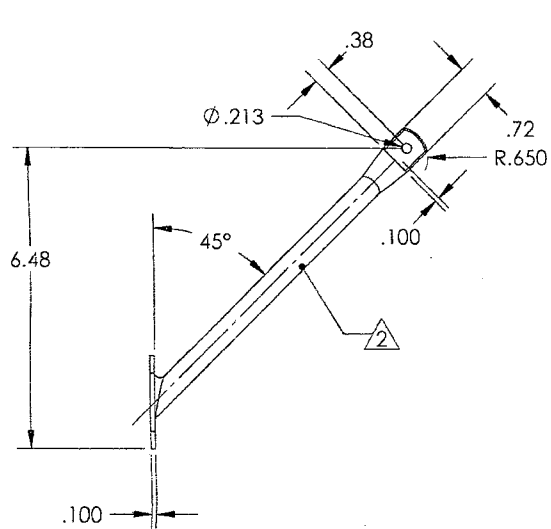
02197, 02440, 04274

QTY	646.3513	STRUT	△△△	△
	646.3512	STRUT	△△△	△
	646.3511	STRUT	△△△	△
	646.3510	STRUT	△△△	△
FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
646.4000		STRUT		
PARTS LIST				
APICAL INDUSTRIES				
2608 TEMPLE HEIGHTS DR.				
OCEANSIDE, CA. 92056-3512 (760)724-5300				
STRUT				
UNLESS OTHERWISE SPECIFIED	DRG. NO.	646.3500	REV.	
1. DIMENSIONS ARE IN INCHES	07/12/26		N/C	
2. PLACE DECIMALS : 01	SCALE	NONE	SHEET	1 OF 2
3. PLACE DECIMALS : 005				
4. DECIMALS : 5				

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646.3512 SHOWN
646.3513 OPPOSITE



ORIGINAL DATE: 06-23-08
DRAWN BY: CHIEF
E. ANDERSON P. BRADY
DRAWING APPROVAL: P. BRADY
DATE: 06-23-08
CONTRACT NO.

APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

STRUT		REV
NEW	646.3500	N/C
SCALE	NONE	SHEET 2 OF 2